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EXAMINER

SCHILLING, RICHARD L

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WOONG-KWON KIM
And YOUN-GYOUNG CHANG

Appeal 2008-1679
Application 10/736,620
Technology Center 1700

Decided: March 5, 2008

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
CATHERINE Q. TIMM, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-34.

Claim 1 is illustrative:

1. A method of fabricating a liquid crystal display device,
comprising:

forming a gate line and a data line crossing each other and defining a
pixel region;

forming a thin film transistor at each intersection of the gate and data lines, wherein the thin film transistor includes a gate electrode, an active layer, a source electrode, and a drain electrode;

forming a first insulating layer to cover the thin film transistor and the data line;

forming a black matrix on the first insulating layer, except for a portion of the drain electrode;

forming a second insulating layer on the first insulating layer to cover the black matrix;

patterning the first and second insulating layers to expose a portion of the drain electrode;

forming a first transparent electrode layer over a surface of the substrate to over the patterned second insulating layer and the exposed portion of the drain electrode;

patterning the first transparent electrode layer to form a pixel electrode in the pixel region, wherein the pixel electrode contacts the exposed portion of the drain electrode;

forming a color filter on the pixel electrode;

forming a second transparent electrode layer over a surface of the substrate to cover the color filter and the pixel electrode, wherein the second transparent electrode is in an amorphous state;

irradiating a light to a portion of the second transparent electrode layer corresponding to the pixel region so as to crystallize the irradiated portion of the second transparent electrode; and

forming a second pixel electrode in the pixel region by removing a non-crystallized portion of the second transparent electrode layer, wherein the second pixel electrode contacts the first pixel electrode over the black matrix.

Appellants' claimed invention is directed to a method of fabricating a liquid crystal display device. The method comprises, *inter alia*, forming a second transparent electrode layer which covers the color filter and the pixel electrode wherein the second transparent electrode is in an amorphous state. The amorphous second transparent electrode is irradiated with light to crystallize the exposed portion, and a second pixel electrode is formed by removing the non-crystallized portion of the second transparent electrode layer.

Appealed claims 1-34 stand rejected under 35 U.S.C. § 112, first paragraph, enabling requirement.¹

Appellants have not set forth an argument that is reasonably specific to any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we find that the Examiner has established a prima facie case of non-enablement under 35 U.S.C. § 112, first paragraph, that has not been rebutted by Appellants. Accordingly, we will sustain the Examiner's rejection.

¹ The Examiner has withdrawn the rejection of claims 1-34 under 35 U.S.C. § 103 over Chang in view Ping.

It is fundamental that the scope of enablement that is provided by a Specification disclosure to one of ordinary skill in the art must be reasonably commensurate in scope with the degree of protection sought by the claims. *In re Moore*, 439 F.2d 1232, 1236 (CCPA 1971). The determination of whether the scope of the claim is commensurate with the supporting Specification must take into account the breadth of the claim and whether undue experimentation would be necessary for one of ordinary skill in the art to practice the breadth of the claim. *See In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988); *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993).

In the present case, as set forth by the Examiner, the appealed claims broadly recite "a second transparent electrode layer" that changes from an amorphous state to a crystalline state upon exposure to light, wherein the non-exposed amorphous portions of the electrode layer are removed. The Examiner correctly points out that Appellants' Specification discloses only indium tin oxide (ITO) or indium zinc oxide (IZO) as materials that can be used for the second transparent electrode layer which changes from an amorphous to crystalline state upon exposure to light. Appellants' Specification gives no indication that other materials may be used for the second electrode layer. Likewise, the Specification relates only one method for removing the amorphous portions of the second electrode layer, namely, etching by oxalic acid. Consequently, inasmuch as the Specification discloses only two materials that can serve as the second electrode, ITO and IZO, and only one method of removing amorphous portions of the second

electrode material, we find that the Examiner has made out a prima facie case of non-enablement for the broadly claimed subject matter.

Appellants, on the other hand, have presented no argument, let alone objective evidence, that other specific materials may be used as the second electrode material, and that other means than etching with oxalic acid can be employed to remove the amorphous portions. While Appellants maintain that they "are entitled to all such materials that would be obvious to those of skill in the art that fall within the scope of the features claimed" (Br. 9, last para.), Appellants have not placed of record any such materials that would be obvious to one of ordinary skill in the art other than the ITO and IZO disclosed in the present Specification. Also, although Appellants rebut the Examiner's citation of Peng's nonobvious exposure of ITO to light to form crystalline areas as evidence of non-enablement by stating that this disclosure "no way proves that no other such materials exist and that they are not well known to those of skill in the art" (*id.*), Appellants have not met their burden of establishing that other materials, in fact, can be used in practicing the claimed invention.

Appellants also maintain that "not every possible embodiment of the invention is required to be disclosed by the Applicants, otherwise every claim limitation would include long laundry lists of obvious items" (*id.*). This argument is not persuasive since, manifestly, not every disclosed embodiment must be claimed. Here, Appellants have disclosed only two materials, ITO and IZO, that are operable in the claimed method of changing an amorphous transparent electrode to a crystalline state by exposure to

light, and only one method for removing the amorphous portions.

Appellants have presented no substantive argument that would allay the Examiner's legitimate concern that one of ordinary skill in the art would need to resort to undue experimentation to discover other materials that may reasonably function as Appellants' second transparent electrode. In the absence of such substantive argument, the Examiner's prima facie case of non-enablement stands unrebutted.

In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED

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